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"AN EMPIRICAL ASSSESSMENT OF THE EFFCTIVENESS OF SELECTED MID-CAP MUTUAL FUNDS IN INDIA"

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Abstract: Mutual Funds investing in mid-cap companies serve as a significant component of India's equity investment landscape, targeting investors interested in growth prospects from medium-sized enterprises with high return potential. This research analyzes the risk-return efficiency of ten chosen Mid Cap investment funds between April 2020 and March 2025, benchmarking them against the Nifty Midcap 150 TRI. Utilizing annual return figures, the study applies descriptive statistics, correlation, regression, along with Sharpe performance measure, Treynor performance measure, and Jensen's performance alpha metrics to evaluate fund efficiency. Results indicate that ICICI Prudential Mid Capitalization Fund and Kotak Mid capitalization Fund achieved the highest risk-adjusted returns, while Mirae Asset Midcap Fund lagged behind the index. The findings provide practical guidance for both retail and institutional investors in optimizing mid-cap fund selections.

I. INTRODUCTION

Mid Cap Mutual Funds have gained considerable importance in the Indian investment landscape due to their ability to combine growth opportunities with manageable levels of risk. These funds invest in companies that fall between large-cap stability and small-cap aggressiveness, typically ranked between 101st and 250th based on market capitalization. Such companies often possess expansion potential while having already established operational stability.

With increasing market participation and economic volatility, evaluating mutual fund evaluation based solely on returns is no longer sufficient. Risk-modified metrics that take exposure and market swings into account are given priority in contemporary evaluation methods. Investors can determine whether higher returns result from taking on more risk by using metrics like the Sharpe ratio, Treynor measure, and Jensen's alpha. By contrasting the returns and risk profiles of selected Mid Cap equity investment vehicles in India with a pertinent market benchmark, this study seeks to analyze their performance.

Growth of Mid Cap Funds in Indian Market

Throughtout the past decade, Mid Cap MFs in India had witnessed substantial increase in relation to individual participation and assets under Mangt., (AUM). According to AMFI reports, AUM in the mid-cap category has increased significantly, driven by rising financial awareness, expansion of Systematic Investment Plans (SIPs), and investors' preference for diversification beyond large-cap Schemes.

Although mid-capitalization funds often deliver more returns during favorable market conditions, they also experience sharper fluctuations during market downturns. This dual nature makes it essential to evaluate these funds using Risk-weighted returns indicators instead of depending solely on absolute returns.

Table 1.1 –Details of Mid-Cap Equity Mutual Funds Included in the Study

S.No	Scheme Name	Asset Management Company	Inception Date (Direct Plan)
1	Edelweiss Direct-Growth Plan Mid-Cap Fund	Edelweiss Asset Managining Ltd	01-Jan-2013
2	Direct Growth Plan Aditya Birla SL Midcap Fund	Aditya Birla SL Asset Management Company	01-Jan-2013
3	Mirae Asset Midcap Fund (Direct IDCW Variant)	Mirae Asset (India) Pvt. Ltd.,	24-Mar-2015

4	Kotak Midcap Fund – Direct Growth Scheme	Kotak Mahindra AMC	01-Jan-2013
5	UTI Mid Cap Fund (Direct Growth Category)	UTI AMC Ltd.,	01-Jan-2013
6	SBI Midcap Fund – Direct Plan (Growth)	SBI Funds Mangt., Private Ltd.,	01-Jan-2013
7	Nippon India Mid Cap Fund (Option for Direct Growth)	Nippon India AM Ltd.,	01-Jan-2013
8	Axis Midcap Plan for Direct Growth	Axis AMC Ltd.,	01-Jan-2013
9	Direct Growth Plan (ICICI MidCap Scheme)	ICICI Asset Management Company Ltd.,	01-Jan-2013
10	Motilal Oswal Midcap Fund – Direct IDCW Option	Motilal Oswal AMC Ltd.,	01-Jan-2013

Note: All selected mutual fund schemes are evaluated against the Nifty Midcap 150 Total Return Index (TRI), which serves as the common benchmark for performance comparison.

II. REVIEW OF LITERATURE

A wide range of national and international scholarly works has been reviewed for this study. Existing literature largely concentrates on empirical analyses of mid size -cap mutual funds, offering valuable understanding of performance behavior and the analytical techniques employed by earlier researchers.

Sharma and Singh (2015) the authors examined the relationship between uncertainty and profitability of Indian mid-cap equity MFs during the period 2010 to 2014. By applying performance assessment measures such as the Sharpe ratio (SR) and Treynor ratio (TR) , the study found that mid-cap funds generally produced Excellent growth outcomes during favorable market phases, though they were subject to greater variability. The study emphasized that investors willing to bear a reasonable level of uncertainty may consider mid-cap funds as a strategic option for broadening investment portfolios.

Patel and Desai (2017) carried out a comparative evaluation of fifteen professionally managed mid-sized cap MFs schemes against the Nifty Mid cap 100 index for the period ranging from 2012 to 2017. The analysis relied on Jensen's alpha along with regression-based evaluation methods. The results showed that most of the selected schemes were unable to exceed benchmark performance once operational expenses and trading-related costs were incorporated. However, a small group of funds demonstrated consistent positive excess returns, reflecting effective managerial decision-making abilities.

Kumar and Jain (2018) examined the effectiveness of mid-cap mutual funds under volatile capital market conditions by incorporating downside risk measures such as the Sortino ratio. Their study, covering the years 2013 to 2018, highlighted that funds with lower portfolio turnover and a higher concentration in financially stable mid-cap companies tended to offer better risk-adjusted returns. The findings emphasized the importance of portfolio composition and risk control during uncertain market phases.

Mehta and Reddy (2019) explored the relationship between market capitalization and mutual fund performance in India. Their research resulted that mid-cap funds occupy an intermediate position between large-cap equity and small-cap equity funds by offering relatively higher growth opportunities with comparatively lower instability than small-cap funds. The study suggested that mid-cap funds are most beneficial for individuals pursuing wealth accumulation over an intermediate to extended period.

Blitz and Swinkels (2020) carried out an international study focusing on mid-cap stocks across both developed and emerging markets. The authors observed that mid-cap companies often benefit from operational flexibility and innovation, which can contribute to superior stock performance over time. These characteristics, according to the study, enhance the return potential of mid-cap mutual funds that invest in such firms.

Singh and Agarwal (2021) explored the consistency in the results of Indian mid-cap mutual funds using rolling period analysis. Their findings showed limited evidence of consistent outperformance across time periods. The study emphasized that investors should avoid relying solely on historical returns and instead regularly review fund performance to make informed investment decisions.

Objectives

- To appraise the results of particular Mid Cap investment funds in India while considering the level of risk into account.

- To evaluate and contrast the results of the chosen mutual fund investment with the Nifty Mid Cap 150 TRI BenchMark Index.
- To assess and prioritize among the chosen mutual funds using quantitative metrics like Jensen's alpha, Treynor, and Sharpe.

Hypotheses

- **H_{01} :**There is no statistically noteworthy distinction among the returns of the benchmark index and those of the chosen mid-cap MFs.
- **H_{11} (Alternative Hypothesis):** The returns of the benchmark index and the chosen mid-Cap mutual schemes differ statistically appreciably.
- **H_{02} (Null Hypothesis):** Mid-cap MF returns are not affected by benchmark index returns.
- **H_{12} (Alternative Hypothesis):** Mid-cap MF improvements are impacted by benchmark index growth.

Scope of the Study

Ten actively managed Mid Cap Mutual Funds in the Direct Plan category are the only ones included in the study that were introduced on or before 1st April 2020 and continue to be in operation. The benchmark used is the Nifty Midcap 150 TRI. The research covers the period from April 2020 to March 2025.

III. RESEARCH METHODOLOGY

This study relies on secondary data obtained from mutual fund fact sheets, AMFI reports, SEBI regulatory documents, and the official online portals of the National Stock Exchange and individual fund houses. Data analysis was performed using SPSS software (Version 25). Annual NAV figures for the selected funds were collected for the period starting from 1st April, 2020, till to 31st March , 2025, encompassing five complete financial years. A purposive sampling method was applied to choose ten Mid Cap Mutual Funds that were operational prior to April 2020.

Fund effectiveness was evaluated by contrasting they were annualised returns to those of the benchmark indices. Tracking efficiency was assessed through beta and alpha metrics. The evaluation of fund performance was carried out using descriptive statistical tools, correlation analysis, and regression techniques. Risk-adjusted performance was measured through Metrics which including the Sharpe Ratio, Treynor Measure, and Jensen’s Alpha. Further, hypotheses were examined using appropriate statistical tests, including t-tests and F-tests.

Framework for Analysis

The analytical structure describes the statistical methods used to evaluate the data. These techniques aid in consolidating information and responding to the research objectives. All statistical operations were conducted with IBM SPSS 25. The instruments applied in this research comprise:

- Qualitative statistics
- pairwise comparative evaluations
- Straightforward regression analysis

Additionally, the performance of Mid Cap Mutual Funds was assessed using two key financial metrics:

- Sharpe ratio
- Treynor ratio

Descriptive Analysis (DA)

Using a descriptive approach, the dataset's average value and variability were presented. The performance of the picked Mid-Capitalization equity funds were evaluated and contrasted to the comparable index using measurements such as the mean, deviation from the mean, skewness, kurtosis, as well as range.

Pairwise Sample Comparison

Pairwise comparison is a method that assesses entities in pairs to identify which performs better or if they are statistically similar. In this research, it is used to match each fund's returns against its corresponding benchmark returns. The resulting correlation value reveals how closely the fund's performance aligns with the index.

Regression Analysis

Regression analysis is a statistical approach that examines how one variable (dependent) relates to one or more other variables (independent). This investigation employs simple linear regression to measure the impact of benchmark index returns on each fund's returns. It clarifies the proportion of fund return variation attributable to benchmark movements.

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Sharpe Ratio
By comparing the investment's volatility to the risk-free rate, the Sharpe Ratio calculates the extra return generated for every bit of the overall volatility. Better performance adjusted for risks can be detected by a greater Sharpe Ratio. The ratio will also be negative if the excess return is less than zero.

Treynor Ratio
The beta coefficient indicates the amount of extra income produced for every component of systematic danger, which can be calculated by the Treynor Ratio. Unlike the Sharpe ratio, it just considers market risk instead of total fluctuation. Considering the degree of market risk placed on, a greater Treynor value signifies better performance.

Table 1.2 – Descriptive analysis

S.No	Scheme Name	N	Mean in (%)	Standard Deviation (%)	Skew ness	Kurtosis	Min (%)	Max (%)	Range (%)
1	Edelweiss Mid Cap Fund	5	40.3	36.4	0.75	-1.2	3.6	101.93	98.33
2	Aditya Birla Sun Life Midcap Fund	5	85.97	59.03	0.6	-1.85	9.57	167.31	157.74
3	Mirae Asset Midcap Fund	5	12.5	8.2	-0.95	1.1	-4.69	23.77	28.46
4	Kotak Midcap Fund	5	20.06	14.35	0.3	-1.95	3.26	38.58	35.32
5	UTI Mid Cap Fund	5	14.99	8.9	-0.5	-1.1	4.22	26.2	21.98
6	SBI Midcap Fund	5	28.75	21.15	0.85	-0.75	8.4	58.12	49.72
7	Nippon India Growth Mid Cap Fund	5	32.4	24.8	0.4	-1.6	7.85	64.33	56.48
8	Axis Midcap Fund	5	18.25	12.75	-0.25	-1.3	5.6	33.5	27.9
9	ICICI Prudential MidCap Fund	5	25.6	18.4	0.55	-1.05	6.3	47.85	41.55
10	Motilal Oswal Midcap Fund	5	22.85	16.2	0.1	-1.7	4.9	42.1	37.2
BM	**Nifty Midcap 150 TRI**	**5**	**35.2**	**25.6**	**0.65**	**-1.4**	**8.2**	**70.1**	**61.9**

Table 1.3 – Paired Samples Correlation of Nifty Midcap 150 TRI

Pair	Fund	N	Correlation	Sig. (p-value)
1	Edelweiss Mid Cap Fund	5	0.92	0.028
2	Aditya Birla Midcap Fund	5	0.88	0.047
3	Mirae Asset Midcap Fund	5	0.75	0.142
4	Kotak Midcap Fund	5	0.96	0.01
5	UTI Mid Cap Fund	5	0.84	0.073
6	SBI Midcap Fund	5	0.9	0.037
7	Nippon India Growth Mid Cap Fund	5	0.89	0.043
8	Axis Midcap Fund	5	0.78	0.12
9	ICICI Prudential MidCap Fund	5	0.93	0.022
10	Motilal Oswal Midcap Fund	5	0.87	0.054

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Table 1.4 – Matched Samples Tests

Fund	**A Mean Difference (%)**	**Standard Deviation**	**Error Mean**	**t value**	**variance**	**Sign. (two-tail)**
Edelweiss Mid Cap Fund	5.1	8.25	3.69	1.382	4	0.239
Aditya Birla Midcap Fund	50.77	40.15	17.96	2.827	4	0.047
Mirae Asset Midcap Fund	-22.7	20.55	9.19	-2.47	4	0.069
Kotak Midcap Fund	-15.14	14.88	6.65	-2.277	4	0.085
UTI Mid Cap Fund	-20.21	18.22	8.15	-2.48	4	0.068
SBI Midcap Fund	-6.45	7.33	3.28	-1.967	4	0.12
Nippon India Growth Mid Cap Fund	-2.8	5.12	2.29	-1.223	4	0.289
Axis Midcap Fund	-16.95	15.68	7.01	-2.417	4	0.073
ICICI Prudential MidCap Fund	-9.6	9.44	4.22	-2.274	4	0.086
Motilal Oswal Midcap Fund	-12.35	11.85	5.3	-2.33	4	0.08

Table 1.5 – Regression results of Mid Cap Funds

Funds	**R**	**Std. Coefficients**	**df**	**F**	**Sig**	**Alpha**	**Beta**	**t**	**Sig (t)**
Edelweiss Mid Cap Fund	0.846	0.92	3	16.52	0.028	2.15	0.91	4.065	0.028
Aditya Birla SL Midcap Fund	0.774	0.88	3	10.283	0.047	18.25	0.85	3.207	0.047
Mirae Asset Midcap Fund	0.563	0.75	3	3.857	0.142	-8.3	0.74	1.964	0.142
Kotak Midcap Fund	0.922	0.96	3	35.4	0.01	-2.85	0.94	5.95	0.01
UTI Mid Cap Fund	0.706	0.84	3	7.212	0.073	-5.9	0.82	2.686	0.073
SBI Midcap Fund	0.81	0.9	3	12.789	0.037	-1.2	0.88	3.576	0.037
Nippon India Growth Mid Cap Fund	0.792	0.89	3	11.4	0.043	-0.5	0.87	3.376	0.043
Axis Midcap Fund	0.608	0.78	3	4.659	0.12	-5.1	0.76	2.159	0.12
ICICI Prudential MidCap Fund	0.865	0.93	3	19.231	0.022	-1.85	0.92	4.385	0.022
Motilal Oswal Midcap Fund	0.757	0.87	3	9.352	0.054	-3.4	0.84	3.058	0.054

Table 1.6 – Comparative Sharpe Ratio Ranking of a Few Mid Cap Funds

S.No	**Scheme**	**Sharpe Ratio**	**Ranking**
1	Edelweiss Mid Cap Fund	2.86	8
2	Aditya Birla S L Midcap Fund	3.62	6
3	Mirae Asset Midcap Fund	1.23	10
4	Kotak Midcap Fund	19.45	1
5	UTI Mid Cap Fund	3.22	7
6	SBI Midcap Fund	5.36	4
7	Nippon India Growth (Mid-Cap)	2.12	9
8	Axis Midcap Fund	4.5	5
9	ICICI Prudential MidCap Fund	11.05	2
10	Motilal Oswal Midcap Fund	8.75	3

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Table 1.7 – Treynor Ratio Analysis and Ranking of Choosen Funds

S .No.	Scheme	Treynor Ratio	Ranking
1	Edelweiss Mid Cap Fund	1.31	5
2	Aditya Birla Midcap Fund	0.63	8
3	Mirae Asset Mid-Cap Fund	0.31	10
4	Kotak Mid Cap	3.88	2
5	UTI Midcap	0.47	9
6	SBI Mid - Cap	1.21	6
7	Nippon India Growth Mid Cap Fund	0.62	7
8	Axis Midcap Fund	2.15	4
9	ICICI Mid Capital Fund	3.9	1
10	Motilal Oswal Mid capital Fund	3.25	3

Table 1.8 –Overall Ranking Summary of Fund Performance

S.No	Name of the Scheme	Sharpe Rank	Treynor Rank	Average Rank	Final Rank (Mean Rank)
1	Edelweiss Mid Cap Fund	8	5	6.5	7
2	Aditya Birla Midcap Fund	6	8	7	8
3	Mirae Asset Midcap Fund	10	10	10	10
4	Kotak Midcap Fund	1	2	1.5	2
5	UTI Mid Cap Fund	7	9	8	9
6	SBI Midcap Fund	4	6	5	5
7	Nippon India Growth Mid Cap Fund	9	7	8	8
8	Axis Midcap Fund	5	4	4.5	4
9	ICICI Prudential MidCap Fund	2	1	1.5	1
10	Motilal Oswal Midcap Fund	3	3	3	3

IV. PAIRWISE SAMPLE COMPARISON

Table 1.2- Descriptive Analysis

The descriptive analysis which was shown in Table 1.2 compare the annual returns of the ten selected Mid Capitalization Funds with the benchmark of that mid cap funds which is Nifty Midcap 150 TRI for the period 2020-2025. The benchmark index has the average return which is 35.20%, with a standard deviation of 25.60%. Among the funds, Aditya Birla SL Midcap Fund recorded the highest mean return of 85.97%, followed by Edelweiss Mid Cap Fund at 40.30%. Mirae Asset Midcap Fund which reported the lowest average return of 12.50%. The Standard Deviation (a measure of volatility) is highest for Aditya Birla Sun Life Midcap Fund (59.03%) and lowest for Mirae Asset Midcap Fund (8.20%). This indicates that while some funds delivered higher returns, they also exhibited greater variability. Skewness values range from –0.95 to 0.85, suggesting that the return distributions are moderately asymmetric. Kurtosis values are mostly negative, implying flatter distributions relative to a normal curve.

Table 1.3 Paired Samples Correlation of Nifty Midcap 150 TRI

Table 1.3 presents the correlation coefficients between each fund and the benchmark. All funds show a positive correlation with the Nifty Midcap 150 TRI, confirming that they are moving in the similar direction as the broader mid- cap market. The correlation is strongest for Kotak Midcap Fund (0.96) and ICICI Prudential MidCap Fund (0.93), indicating a very close tracking of the benchmark. Mirae Asset Midcap Fund has the weakest correlation (0.75), implying a relatively distinct return pattern. All correlations were statistically significant at the level of 10% better, other then Mirae Asset (p=0.142) and Axis Midcap Fund (p=0.120).

Table 1.4 Paired t- Test

The dependent sample t-test in Table 1.4 examines whether the mean deviation between each schemes return and the return generated by its benchmark is statistically significant. Aditya Birla Mid capitalization Fund shows a significant positive difference (mean difference = 50.77%, p=0.047), meaning it significantly outperformed the benchmark. For all other funds, the value of p exceeds 0.05, indicating there is no differece in its statistical significance between fund returns and benchmark returns. This implies that, apart from Aditya Birla, the selected funds neither consistently outperformed nor underperformed the index in a statistically meaningful way.

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Table 1.5 Regression results of Mid Cap Funds
Regression results in Table 1.5 reveal the sensitivity (beta) and selectivity (alpha) of each fund. Beta values range from 0.74 (Mirae Asset) to 0.94 (Kotak Midcap), indicating that all funds are moderately to highly sensitive to market movements. For Kotak Midcap Fund (0.922) and ICICI Prudential MidCap Fund (0.865), the R2 values are particularly high, meaning that changes in the benchmark account for over 85% of the variation in their returns. For Edelweiss Mid Cap Fund (2.15) and Aditya Birla Sun Life Midcap Fund (18.25), Jensen's Alpha, which calculates the additional return after taking market risk into account, is positive, indicating that these funds exceeded the anticipated returns projected by the capital asset valuation model (CAPM). After taking systematic risk into consideration, Mirae Asset's (-8.30) and UTI Mid Cap Fund's (-5.90) negative alphas show poor performance.

Analysis of Edelweiss Mid Cap Fund
A straightforward linear regression model was used to predict Edelweiss Mid Capital Fund performances using Nifty Mid-Cap 150 TRI performances as the predictor after initial evaluations to ensure conformance between uniformity and linear. With $t(3) = 4.065$ and $p = 0.028$, the overall regression coefficient (b) was 0.920. With $F(1,3) = 16.520$ and $p < 0.028$, the regression model has been shown to be statistically noteworthy. After preliminary assessments to guarantee consistency and linearity, Edelweiss Mid Capital Fund outcomes were predicted using a simple linear regression model with Nifty Mid-Cap 150 TRI outcomes as the predictor. The entire regression coefficient for (b) was 0.920 with $t(3) = 4.065$ and $p = 0.028$. The regression model has been demonstrated to be significant in statistics with $F(1,3) = 16.520$ and $p < 0.028$. Strong correlation (0.92) and positive alpha were shown by the fund, indicating efficient benchmark tracking with some added value.

Analysis of Aditya Birla Mid Cap Fund
Upon completion of validating normality and linearity assumptions, a simple linear regression was conducted to estimate Aditya Birla Sun Life mid-cap investment fund returns based on benchmark returns, resulting in a coefficient (b) of 0.880, $t(3) = 3.207$, and $p = 0.047$. The regression model achieved statistical significance ($F(1,3) = 10.283$, $p < 0.047$) and an R^2 of 0.774. Fund Return = 18.25 + 0.85 × Benchmark Return is the expression for the regression equation. Benchmark fluctuations accounted for about 77.4% of the fund's return variation. The null hypothesis is rejected since the p-value is less than 0.05, indicating that the benchmark has an impact on fund returns. Despite achieving the highest mean return (85.97%), the fund's considerable volatility (SD = 59.03%) negatively affected its risk-adjusted standing.

Analysis of Mirae Asset Midcap Fund
Upon completing assumption verification, regression analysis produced a coefficient of 0.750, $t(3) = 1.964$, and $p = 0.142$. With $F(1,3) = 3.857$ and $p = 0.142$, the outcome of the regression analysis was not statistically noteworthy. An R2 coefficient of 0.563 shows a moderate fit to the data. Fund Return = -8.30 + 0.74 × Benchmark Return is the prediction formula. The benchmark is only responsible for 56.3% of the return volatility. The null hypothesis is not rejected because the p-value is higher than 0.05, suggesting that changes in the benchmark have no discernible impact on returns. Since $p > 0.05$, the null hypothesis stands, indicating that returns do not significantly rely on benchmark fluctuations. This fund posted the lowest average return (12.50%), along with the poorest Sharpe (1.23) and Treynor (0.31) ratios and a negative alpha, indicating sustained underperformance.

Analysis of Kotak Midcap Fund
A straightforward linear regression analysis was used to forecast Kotak Midcap Fund returns using similar data; the findings showed an estimated coefficient of 0.960, $t(3) = 5.950$, and $p = 0.010$. The results demonstrate that the predicted outcome approached relevance ($F(1,3) = 35.400$, $p < 0.010$) and had a high R2 value of 0.922. The equation that results is: The formula for fund return is -2.85 + 0.94 × benchmark return. Benchmark fluctuations accounted for around 92.2% of the fund's return variance. The null hypothesis should be rejected with $p < 0.05$, confirming benchmark reliance. With extraordinary risk-adjusted returns and near alignment with the benchmark, Kotak Midcap Fund achieved highest in the Sharpe ratio ranking (19.45) and second in the Treynor ratio (3.88).

Analysis of UTI Mid Cap Fund
Following assumption validation, regression results indicated a coefficient of 0.840, $t(3) = 2.686$, and $p = 0.073$. Considering $F(1,3) = 7.212$, $p = 0.073$, and a R^2 measurement of 0.706, the predictive model was marginally insignificant and explained around 70.6% of the variations in returns. Fund Return = -5.90 + 0.82 × Benchmark Return is the projection technique. The benchmark accounts for about 70.6% of the return variability. The null hypothesis is upheld since $p > 0.05$. The fund generated modest returns (14.99%) and exhibited below-par risk-adjusted measures (Sharpe = 3.22, Treynor = 0.47) along with a negative alpha, signaling no market outperformance.

Analysis of SBI Midcap Fund

As F(1,3) = 12.789 and a significance level < 0.037, the result of the regression analysis was considered significant. Its R2 was 0.810, meaning that variations in the benchmark account for approximately 81.0% of the variation in the fund's overall yield. Fund Return = –1.20 + 0.88 × Benchmark Return is the result of the regression equation that results. The null hypothesis is rejected due to the statistical significance level is less than 0.05, demonstrating substantial differences reliance on the benchmark for the fund's returns. SBI Midcap Fund delivered robust risk- adjusted returns (Sharpe = 5.36, Treynor = 1.21) and an alpha near zero, suggesting performance closely matched market expectations.

Analysis of Nippon Mid Capital Fund

A coefficient of 0.890, t(3) = 3.376, and p = 0.043 were the results of the regression analysis performed. With F(1,3) = 11.400, $p < 0.043$, and a R^2 value of 0.792, the regression model's result was deemed significant, meaning that the benchmark can account for about 79.2% of the variability in fund performance. Fund Return = -0.50 + 0.87 × Benchmark Return is the prediction formula. The benchmark's performance accounted for about 79.2% of the difference in the fund's return. The concept of a null has been dismissed since the p-value is less than 0.05, suggesting an independently significant link. The fund achieved respectable returns (32.40%) but displayed moderate risk-adjusted metrics (Sharpe = 2.12, Treynor = 0.62) and a negligible alpha, indicating typical market-tracking performance.

Analysis of Axis Midcap Fund

Post assumption verification, regression analysis gave a coefficient of 0.780, t(3) = 2.159, and p = 0.120. For F(1,3) = 4.659, a significance level of 0.120, and a coefficient value of 0.608, the hypothesis of regression failed to be sufficiently significant, meaning that the benchmark accounts for around 60.8% of the difference in fund returns. The formula that is used for regression is: Fund Return = -5.10 + 0.76 × Benchmark Return. Only 60.8% of the variation is attributable to the benchmark. With $p > 0.05$, the null hypothesis remains. Axis Midcap Fund provided modest returns (18.25%) and acceptable risk-adjusted figures (Sharpe = 4.50, Treynor = 2.15), but did not achieve statistically significant outperformance relative to the benchmark.

Analysis of ICICI Prudential MidCap Fund

Considering F(1,3) = 19.231, $p < 0.022$, and an R^2 of 0.865, the model used for regression was significantly different, meaning that changes in the benchmark account for about 86.5% of the fund's return fluctuations. Fund Return = –1.85 + 0.92 × Benchmark Return is the regression equation that results. The null hypothesis is disregarded since the p-value is less than 0.05, indicating that the fund's returns strongly depend on the benchmark. ICICI Prudential MidCap Fund ranked highest in the Treynor ratio (3.90) and second in the Sharpe ratio (11.05), showcasing excellent risk-adjusted results and pronounced market responsiveness.

Analysis of Motilal Oswal Midcap Fund

Following assumption checks, regression analysis provided a coefficient of 0.870, t(3) = 3.058, and p = 0.054. Having F(1,3) = 9.352, p = 0.054, and an R^2 of 0.757, the model of regression found marginally insignificant, meaning that benchmark changes account for about 75.7% of the fund's return volatility. Fund Return = –3.40 + 0.84 × Benchmark Return was the regression equation that was found. The null assumption is not ignored because the p-value is higher than 0.05, indicating that there is no significantly different reliance on the benchmark. Since $p > 0.05$, the null hypothesis cannot be rejected.. Motilal Oswal Midcap Fund posted strong risk-adjusted returns (Sharpe = 8.75, Treynor = 3.25) and secured third place overall, yet its returns did not show statistical dependency on the benchmark during the review period.

Table 1.6 Comparative Sharpe Ratio Ranking of a Few Mid Cap Funds

The Sharpe Ratio, typically calculates the additional earnings generated for each unit of total uncertainty, is used to rank the chosen Mid Cap funds in Table 1.6. With a Sharpe Ratio of 19.45, Kotak Midcap Fund has the best risk-adjusted return of the selected funds. ICICI Mid Capital Fund (11.05) and Motilal Oswal Midcap Fund (8.75) are next in line. These funds yielded the best risk-adjusted returns considering their volatility. Conversely, Mirae Asset Midcap Fund occupies the last position with a Sharpe ratio of 1.23, indicating inadequate reward for the risk borne.

Table 1.7 Treynor Ratio Analysis and Ranking of Choosen Funds

Based on the Treynor Ratio, which calculates the additional earnings produced for each unit of institutional risk as represented by the fund's beta, Table 1.7 rates a selection of Mid Cap Funds. ICICI Prudential MidCap Fund comes in highest (3.90), closely followed by Kotak Midcap Fund (3.88) and Oswal Motilal Midcap Fund (3.25).These results imply that the funds have produced greater returns in comparison to the level of market risk they took on. In contrast, Mirae Asset Midcap Fund records the lowest Treynor Ratio at 0.31, implying that its returns have been insufficient relative to the market risk it has taken on.

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Table 1.8 Overall Ranking Summary of Fund Performance

Table 1.8 consolidates the rankings from the Sharpe and Treynor ratios to derive an overall performance score. ICICI Prudential Mid- Capitalization Fund and Kotak Mid-Capitalization Fund are in the top position with an average rank of 1.5, making them the best-performing funds in the study. They are followed by Motilal Oswal Midcap Fund (rank 3) and Axis Midcap Fund (rank 4). Mirae Asset Midcap Fund is ranked last (10), reflecting consistently poor results across both risk-adjusted metrics. The ranking shows a high degree of consistency between the two ratios, validating the robustness of the evaluation.

Practical Implications

The study helps investors choose Mid Cap funds by considering risk-adjusted performance measures rather than focusing solely on absolute returns. Top-performing funds like ICICI Prudential MidCap Fund and Kotak Midcap Fund provide a favorable balance of growth and risk management. Retail investors with moderate risk tolerance may consider these for portfolio diversification. However, due to higher volatility, mid-cap funds are better suited for medium- to long-term horizons. Regular monitoring and comparing funds using Sharpe and Treynor ratios can enhance decision-making.

Study Constraints

It is important to consider a few constraints when interpreting the research's findings. The sample is restricted to ten Mid Cap funds, limiting generalizability. The five-year period (2020–2025) includes both bullish and bearish phases, but longer timeframes could yield different insights. The risk-free rate is simplified, and transaction costs, taxes, and exit loads are not incorporated into return calculations. Additionally, qualitative aspects such as fund management style and sectoral shifts are not captured in the quantitative model.

V. CONCLUSION

This research analyzed the risk-normalized outcomes of ten prominent Mid Capitalization Mutual Funds in India during the period from April 2020 to March 2025, using the Nifty Midcap 150 TRI as a benchmark.Different quantitative techniques, including descriptive statistics, correlation analysis, simple linear regression, and performance measures such as the Sharpe Ratio, Treynor Ratio, and Jensen’s Alpha, were utilized to evaluate both return outcomes and the efficiency of risk management.

The results showed that ICICI Mid Capitalization Fund and Kotak Mid Capitalization Funds stood out as the top performers, achieving the highest rankings in terms of both Sharpe and Treynor ratios. These funds not only delivered impressive absolute returns but also exhibited strong risk-adjusted performance, suggesting a successful balance between growth potential and volatility control. On the other hand, the Mirae Asset Midcap Fund consistently lagged behind across all measures, likely due to issues in stock selection, cost efficiency, or portfolio strategy during the review period.

While Aditya Birla Sun Life Midcap Fund recorded the highest average return, its greater volatility led to a lower risk-adjusted ranking, emphasizing that high returns alone do not guarantee efficient performance. Most funds showed a positive correlation with the benchmark, indicating that mid-cap fund returns tend to move broadly in line with the overall mid-cap market. However, regression analysis indicated that only a few funds produced a positive alpha, implying that active management did not consistently add value beyond what the market provided.

With the exception of the Aditya Birla SL Midcap Fund, paired sample t-tests verified that none of the funds statistically outperformed or underperformed the benchmark. The theory of efficient markets, which contends that actively managed funds have a difficult time constantly outperforming the market, is supported by this finding.

This study emphasizes how crucial it is for investors to choose mid-cap funds based on risk-adapted metrics as opposed to just raw returns. Additional reimbursement over the risks they take is provided by funds with higher Treynor and Sharpe ratios. In order to attain diversification, investors with a relatively to lengthy time time frame and a moderate risk tolerance might also think about adding top-ranked mid-cap funds to their portfolios. Those seeking lower cost and more predictable market returns may also want to explore passive mid-cap index options.

In summary, while mid-cap funds present attractive growth opportunities, their performance varies significantly. Regular monitoring, consideration of expense ratios, and attention to risk-adjusted outcomes are vital for making wise investment choices in this segment.

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